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ABSTRACT

This study examines the correlation between standardized college admissions tests and life achievements of students attending historically black colleges. The study sample included 121 people who had graduated from one of eleven historically black colleges in the South in 1971. The students' ACT (American College Testing program) scores were correlated with measures of educational attainment, occupational status, and self-perception of success. Findings showed that despite their low initial scores on standardized tests, study participants were able to achieve considerable educational attainment and career success. Specifically, results indicated that (1) standardized test scores are not valid predictors of the future educational attainment and career success of blacks; (2) undergraduate grade point averages are valid predictors of the future educational success of blacks to the extent that higher grade-point averages may be associated with higher salaries; and (3) the historically black colleges provide an opportunity to obtain a bachelor's degree, and thereby enhance access to further education attainment and career success to students who more than likely would not be admitted to college under traditional admissions criteria. Recommendations for further research, a bibliography, and a copy of the survey questionnaire are included in the report. (Author/BE)

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A FOLLOW-UP STUDY OF THE RELATIONSHIP BETWEEN TRADITIONAL MEASURES OF ACADEMIC SUCCESS AND CAREER SUCCESS

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Part 3 of the Research Program and Problems Relating to the Desegregation of Higher Education

A Report to
The National Institute of Education

Institute for Services to Education
Division of Research and Evaluation

August 29, 1979

UD020425

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HIGHLIGHTS

Undergraduate Background

- The majority of respondents attained scores on the ACT battery which were less than the standard score of 20. The mean scores generally fell below the 12th percentile, indicating that 88 percent of the persons in the norm group had higher test scores.

- In terms of overall intelligence as measured by the SRV verbal test, only 12 percent of the original 364 participants ranked "above average" on the initial pre-test, while 56 percent were rated as below average. Slightly higher scores were received on the post-test given in the spring of the freshman year.

- Participating students majored in a variety of areas. Commonly cited majors were social science (30.5 percent), education (12.4 percent) and business administration (12.4 percent).

- The mean grade-point average for the sample of 121 students was 2.86. The average grade-point average for females and males was 3.05 and 2.55, respectively.

Occupational Status

- The majority (79 percent) of the respondents were employed full-time by school systems (primarily elementary school and secondary school teachers), non-profit organizations, or the state, local or federal government.

- Considerably more females (87 percent) than males (66 percent) were employed full-time. An additional 16 percent of the males were involved in military service.

- Only 5 percent of the respondents were unemployed at the time of the study. A number of others (5.5 percent) were working part-time, were students or housewives.

- The majority of respondents were employed in professional capacities. Only 13 percent were currently working in unskilled positions. Further, only 1.3 percent were currently employed in clerical/secretarial jobs.

- The salaries of the respondents ranged from less than $7,000 to more than $25,000. The average salary for females was $12,400; for males, $12,650.

- Family income was considerably higher than personal salaries. The average family income for females was $19,940; for males, $20,140.

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- Respondents experienced far fewer problems with their current positions than with their first jobs. The most frequently mentioned problem on both the first and current jobs was racial discrimination.

- In general, respondents were favorably disposed toward their current jobs. Most were working in the field for which they were trained and saw their current jobs as part of their long-range career goals. In addition, the majority of the respondents felt that they currently had "good" jobs which offered opportunities for advancement.

Educational Attainment

- The 121 participants in the follow-up survey had obtained bachelor's degrees in a wide range of academic areas.

- Overall, 64.5 percent had engaged in graduate study beyond the baccalaureate degree. Forty-three had completed master's degrees, 4 had completed doctorate or professional degrees and 33 had taken one semester or more of graduate study. There were 18 respondents who indicated that they were working on master's degrees and 10 who were pursuing doctoral or other professional degrees.

- An average of 3.5 years was required to obtain a master's degree and 4 years to earn a doctoral or other professional degree.

- Of the 41 persons who had not engaged in graduate study, 92.7 percent planned to continue their education in the future.

- The most frequently mentioned obstacle to completion of graduate study was financial problems.

- On the average, 40 percent of expenses for graduate study were met by fellowships; 20 percent by employment; and 40 percent from other sources, including savings, loans, family assistance, GI Bill and employee benefits.

- Fifty-two (43 percent) of the respondents indicated that they had taken out loans for undergraduate study. The mean amount of loans for both sexes was $1,542.

- Twenty-one (26.9 percent) of the respondents pursuing graduate study had assumed loans averaging $2,679.

Self-Assessment of Success

- Respondents generally viewed themselves as being fairly successful in comparison with others in their peer group. Thirteen percent perceived themselves to be in the highest 10 percent, while another 35.5 percent believed their success to be at least above average.

Correlation of Selected Dependent Variables with GPA

- A significant statistical relationship has not been observed between grade-point average and salary. Both salary and highest degree held appeared to be significantly related to self-perception of success.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Context of Problem	1
Review of Literature	4
METHODS	7
Population and Samples	7
Variables	9
Instrumentation and Data Collection	9
Data Processing and Analysis	12
Limitations	12
RESULTS	13
Student Academic Characteristics Prior to Graduation	13
Educational Attainment After Graduation	17
Occupations	27
Self-Assessment of Success	32
Correlation of Selected Dependent Variables with GPA	32
Summary of Findings	34
DISCUSSION	36
RECOMMENDATIONS	41
BIBLIOGRAPHY	42
APPENDICES	44
A - Selected Tabulated Data	45
B - ISE Follow-Up Questionnaire	55

LIST OF TABLES

1. Comparison of Follow-Up Study Participants with Initial Sample by Sex
2. Responding Students, By Institution
3. Distribution of Persons Participating in Follow-Up Study, By Sex
4. Undergraduate Grade-Point Average, By Sex
5. Highest Degree Held, By Sex
6. Highest Degree Working Toward, By Sex
7. Number of Years of Graduate or Professional Study Completed, By Sex
8. Summary of Graduate Educational Attainment, By Sex
9. Elapsed Time In Receiving Master's Degree, By Sex
10. Elapsed Time In Receiving Doctorate/Professional Degree, By Sex
11. Obstacles to Graduate Study, By Sex (N = 78)
12. How Expenses Were Met For Graduate Study, By Sex of Respondents
13. Sources of Support for Current Graduate Study, By Sex
14. Total Amount of Undergraduate Loan, By Sex
15. Total Amount of Graduate Loans, By Sex
16. Primary Work Activity, By Sex
17. Salaries of Respondents, By Sex
18. Family Income of Respondents, By Sex
19. Self Perception of Success in Relationship to Others, By Sex
20. X^2 Distribution of GPA's with Selected Dependent Variables
21. Degrees Aspired to and Held by Members of the Original and Follow-Up Study Sample, By Percentage Distribution

INTRODUCTION

Despite recent controversy regarding the predictive validity of standardized tests, public demands for educational accountability and high rates of unemployment among college graduates, surprisingly few studies take a longitudinal look at the accomplishments of college students after graduation. Further, only a dearth of research has been done to investigate the degree of correlation between standardized test scores and life achievements. In light of the continuing debate over the value and uses of standardized testing, a need exists to further examine their predictive validity. In so doing, emphasis should be placed on advanced educational achievements, career success and community involvement as criterion variables in addition to the traditional criterion of undergraduate academic performance.

Context of the Problem

The court-ordered desegregation of American public higher education has raised a number of issues in need of resolution (Haynes, 1978). Among the more pressing problems to be addressed if educational parity is to be achieved, are those of access and retention.

With regard to minority access, many educators have voiced a concern over the traditional use of standardized test scores as crucial factors in the admissions process, since blacks tend to perform poorly on such examinations in comparison to the majority population (Astin, 1970, ACE, 1979 and Astin, 1975). This overemphasis on test performance limits the number of minorities who gain

entry to predominantly white colleges and universities, thereby undermining any efforts to increase minority enrollments.

Standardized test scores have been used extensively as an admissions criterion because standardized tests are believed generally to accurately predict academic success. However, the results of a number of studies have questioned the predictive validity of standardized measures for black students. Some researchers have suggested that standardized test scores tend to overestimate the grade-point averages (GPAs) of black students (e.g., Clark and Plotkin, 1964), while others have found the reverse to be true (e.g., Temp. 1971; Kallingal, 1971). Still other researchers have indicated that the same predictors work equally well for both black and white students (Stanley and Porter, 1967). Nevertheless, the existence of contradictory empirical evidence relative to standardized testing has had a negligible impact on college and university admission policies.

In addition to the conflicting evidence cited above, there are two factors which, if taken into consideration, suggest a need to re-examine the predictive validity of standardized tests for blacks. The first factor is the success of the more than 100 historically black colleges (HBCs) in educating large numbers of disadvantaged students. Typically, the students attending these institutions are from low-income families and have parents with relatively low educational achievement. Moreover, if judged on the basis of standardized test scores, the large majority of HBC students would be expected to perform poorly in their college careers. However, the HBCs have accepted,

retained and graduated these students in the absence of any national commitment to provide higher education for blacks.

Blake (1970) estimated that approximately 80 percent of the 492,000 black college graduates in 1967 were products of historically black institutions. Many surveys have been conducted which support this estimate. For example, Bryant (1969) in a survey of black Ph.D. holders, found that 74 percent of the sample population had earned baccalaureate degrees from black institutions. Similarly, Haynes (1969) found that 83 percent of all black physicians in America had graduated from one of two black medical schools -- Howard University and Meharry Medical School. These figures illustrate the major contributions of the HBCs and black college graduates to American society. In addition, the achievements of these institutions relative to the transformation of poorly prepared students into competitive graduates tends to challenge academia's over-reliance on standardized measures.

The second factor which suggests the need to re-examine the use of test scores in admissions is the lack of attention given to the outcomes of higher education. The prediction of freshman and sophomore grade-point averages may have utility as a diagnostic measure. However, college GPAs are not necessarily indicative of the quality of career achievements or contributions to society in adult life. The emphasis of researchers on predicting the college achievement of students tends to obscure the raison d'etre of postsecondary education: To equip students with the general knowledge and skill required to maximize social, cultural and political awareness and to pursue meaningful careers.

Review of the Literature

A cursory review of the literature would indicate that a number of studies have been conducted to investigate the long-term effects of higher education. However, an examination of such studies would reveal that a large majority of the past works focus on institutional productivity or changes in student attitudes during their college careers. Few of them provide follow-up data on students from two to ten years after college.

Sharp (1970) conducted a random survey of a nationwide cohort of 1958 college graduates two and five years after college. Among the highlights of Sharp's study were:

- Sharp differences existed between those students who majored in the humanities or sciences and those who majored in business, education, or health fields. The former group was geographically more mobile, more likely to have gone to graduate school, and much less likely to have participated in military service. The latter group was likely to have remained in the same region, with the exception of time spent in the military.
- The undergraduate major rather than the institution attended tended to have the greatest impact on career outcomes.
- The best continuity between college preparation and work was achieved by those who chose to become teachers. Business majors were least likely to see a connection between their undergraduate studies and work and were least likely to pursue graduate education.
- There was a surprisingly low correspondence between type of college and earnings five years later. Moreover, high academic achievement appeared to have little effect on obtaining the best salary. In the early career stages, work experience seemed to have greater importance (Sharp, 1970).

Spaeth and Greeley (1970) conducted a seven-year follow-up study of 1961 college graduates. In exploring the relationships between education and occupation, they found college selectivity to be a relatively minor determination of occupational prestige.

The best predictor of occupational prestige appeared to be occupational prestige expectations three years after graduation, which was strongly related, in turn, to plans and expectations in high school and college. The latter were related to ability, parental SES (Socioeconomic status), and assignment to a college prep track in high school (in that order of importance). The second strongest predictor of occupational prestige was postgraduate study followed by college grades. Spaeth and Greeley concluded that career plans are a more independent influence on the kinds of jobs actually held than academic performance.

Finley, Horsely and others (1967) analyzed data collected annually by the College Placement Council since 1959 on the salaries of former college students during the first year after graduation. In partial support of the conclusions reached by Sharp and Spaeth and Greeley, they found no correlation between students who ranked highest relative to salary scale and the following factors: (1) exceptional grades, (2) outstanding leadership, (3) previous work experience, (4) older than average age, (5) marriage, (6) veteran status, and (7) five-year bachelor's degrees.

Astin and Panos (1969) conducted a large scale follow-up study in 1965 of students who had entered a representative sample of accredited colleges and universities in the fall of 1961. Among their findings was that student achievement was not affected by the level of financial resources available to the institution, the level of academic competitiveness, or the intellectual level of classmates. Moreover, no evidence was

obtained to support the common belief that students with high academic aptitude benefit more than the less favorably endowed student from exposure to these traditional features of "high quality" institutions.

In a continuation of the 1965 survey, El Khawas and Bisconti (1974) conducted a ten-year follow-up study of the same group of students. The report sought to monitor patterns of educational and career development in addition to changes in attitudes, behavior and plans. Eighty (80) percent of the persons in 1961 cohort had completed their baccalaureate work by 1971, with 9 percent having earned Ph.Ds or professional degrees and 29 percent, at least a master's degree. However, fewer women (46 percent) than men (57 percent) had enrolled for advanced study. Among the former students in the labor force, 21 percent were elementary or secondary school teachers, 22 percent were businessmen and 23 percent cited involvement in other professional occupations (e.g., medicine, law, engineering). An overwhelming majority of the 1961 freshmen considered their job to be a good one (81 percent) and thought their job fit in with their own long-range goals (76 percent). However, 16 percent indicated experiencing difficulty in finding work and 23 percent thought they were working for a salary considerably lower than their own qualifications deserved. No attempt was made by the authors to correlate academic achievement and advanced educational study or realization of career goals.

In summary, with the possible exception of the study by Spaeth and Greeley, the research findings tend to support the

notion that both high-performance on standardized measures and high undergraduate achievement are unrelated to career success. Moreover, institutional selectivity in admissions appears to have no relationship to either academic achievement or occupational prestige.

METHODS

This study was conducted as part of a larger research effort focusing on specific issues related to the desegregation of public higher education in ten selected states, with an emphasis on six of the original Adams states.* The primary purpose of the study was to examine the predictive validity of standardized tests in determining the success and progress of students graduating from historically black colleges. Designed as a follow-up study, this research effort employed survey research methodology to collect data on the career patterns and additional educational pursuits of students since leaving their undergraduate institutions. The data are examined in light of ACT (American College Testing program) scores received prior to undergraduate admissions and cumulative grade-point averages achieved by the end of the senior year. It was hypothesized that there was no statistically significant relationship between a student's ACT score and future success upon graduation from college.

Population and Sample

The population of the study consisted of 2,448 seniors from eleven institutions located in eleven states: North Carolina,

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* The ten states originally impacted by the Adams vs. Richardson case (1970) were: Arkansas, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Pennsylvania and Virginia. The six states emphasized in this research program were: Georgia, Virginia, Maryland, Pennsylvania, Florida, and North Carolina. The other four non-Adams states were: Alabama, Texas, Tennessee, and South Carolina.

Alabama, Florida, Texas, Mississippi, Georgia, Missouri, Virginia, Tennessee, South Carolina and Louisiana. These institutions, six of which were publicly controlled and five of which were privately controlled, included the following: Alabama A&M University, Bennett College, Bishop College, Clark College, Florida A&M University, Jackson State University, North Carolina A&T University, Southern University, Talladega College, Tennessee State University, and Voorhees College. All of the institutions had senior level status and more than half offered graduate degrees.

The characteristics of the student population were similar in most instances to those of students attending the historically black colleges in general. Most of the students were: (1) southern-born, (2) within the 20 to 22 age-range, (3) graduates of segregated high schools, (4) from families with annual incomes of $5500 or less, and (5) the recipients of some type of student financial aid. Consistent with their reported income levels, a significant portion of the parents of these students had not finished high school and were employed as domestic workers or laborers.

A judgmental sample of 364 students was drawn from the population. The sample was restricted to those students who had completed the ISE Senior Questionnaire in Spring, 1971 and who had graduated at the end of the year. The only discrepancy between the characteristics of the sample and that of the population was that unlike the student population, the preponderance of students in the sample were from urban rather than rural areas.

For additional details regarding the population and sample, see: Predicting the Academic Success of Black Students Attending the Historically Black College, Part 2 of the Research Program on Problems Relating to the Desegregation of Higher Education (1979).

Variables

To accomplish the objectives of the study, the following variables were investigated: (1) educational attainment since leaving the undergraduate institution, including highest degree obtained, sources for covering educational expenses, total amount of undergraduate and graduate loans, and obstacles encountered in graduate study; (2) occupational status, including first and current jobs, salary, family income, job satisfaction, job characteristics and primary work activity; (3) self-assessment of success; and (4) selected undergraduate education data items, specifically grade-point average, undergraduate major and ACT scores. For the purposes of the study, ACT was selected as the independent variable and educational attainment, occupation status and self-perception of success were employed as dependent variables.

Instrumentation and Data Collection

The data collection effort of this study consisted of a two-step process. In July, 1977, a short questionnaire was developed and sent to the registrar of each of the 11 institutions requesting the following information regarding each student: date of graduation, undergraduate grade-point average, whether the student attended graduate/professional school and where, and others. The registrar was also asked to provide the student's most recent mailing address. Two additional follow-ups, one by mail and one

by telephone, were required to get an 85 percent response to the institutional questionnaire. Of the two institutions which did not participate in the study, one was concerned about violating the Student Privacy Act and the other failed to return the questionnaire.

A second questionnaire (the principal instrument of the study) was developed to collect data on educational attainment, occupational status, and self-perception of success. This instrument was derived, by special permission, from the survey questionnaire used by Elaine H. El-Khawas and Ann S. Bisconti in the study Five and Ten Years After College Entry, (1974). This instrument was mailed to each of the 364 students during the spring of 1978. The original mailing was followed up by postal cards, once in mid-April and the other at the end of April.

Participation in the follow-up study was strictly voluntary and was dependent upon those former students who responded to the questionnaire. Of the original sample of 364 students, 121 completed the questionnaire of which 44 were males and 77 were females. Table 1 illustrates the distribution by sex of the responding students in comparison to the initial sample. Overall, 33.2 percent of the sample participated in the follow-up study. Responses were received fror former students of each of the eleven institutions participating in the study (Table 2).

TABLE 1

Comparison of Follow-Up Study Participants With Initial Sample, By Sex

Sex	Number in Original Sample	Number Responding	Percent of Sample
Males	134	44	32.8
Females	227	77	33.9
Total	361	121	33.5

TABLE 2

Responding Students, by Institution

Institution	Number of Participants
Alabama A&M University	10
Bennett College	10
Bishop College	7
Clark College	12
Florida A&M University	9
Jackson State University	17
North Carolina A&T University	12
Southern University	4
Talladega College	14
Tennessee State University	4
Voorhees College	22
Total	121

Data Processing and Analysis

Responses from completed questionnaires were edited, coded, and keypunched for processing by computer using the Statistical Package for the Social Sciences (SPSS). For the most part, the data analysis was descriptive, based upon univariate and bivariate frequencies in which measures of central tendency such as the mean, the median, and the mode were applied. Analysis of the data also included measures of association between variables (i.e., Pearson's correlation coefficient and chi-square).

Limitations

The results of this study are impacted by two major limitations. Firstly, a judgmental sample was employed during the first part of the study due to data problems. Hence, the results of the study are not generalizable to graduating seniors of the participating institutions, although the characteristics of the population and the student samples were generally consistent. Secondly, the ACT scores were in aggregative form for the original sample of 364 students and therefore were not available on an individual basis for the 121 students who responded to the follow-up survey. Additionally, the data analysis would have been aided by additional information on age, length of time in each employment position, current professional and community activities, and other significant accomplishments since completion of the bachelor's degree.

RESULTS

Student Academic Characteristics Prior to Graduation

Data from the follow-up study were analyzed to provide a description of (1) undergraduate background; (2) the educational attainment beyond the bachelor's degree; (3) the occupational status and primary activity of respondents since their graduation from undergraduate institutions; and (4) their perceptions of success and personal accomplishment. The results were tabulated separately by sex for the 44 males (36 percent) and 77 females (64 percent) participating in the study.

TABLE 3

Distribution of Persons Participating in Follow-Up Study, By Sex

Sex	Number	Percent
Males	44	36.4
Females	77	63.6
Total	121	100.0

As this study was longitudinal in nature a portion of the data was collected during the period of undergraduate education. This included data on standardized test scores, grade-point averages, and undergraduate majors.

The American College Test (ACT) was among those standardized tests administered to the initial group of 364 students. Two purposes of this test are to (1) provide institutions with a description of the academic potential and college achievements of

entering students and (2) determine the relation between measures of academic potential and measures of college achievement.

The ACT test was first administered to participating students in the Fall of 1967, upon entrance into the academic institution. An ACT post-test was administered Spring, 1968. The results of the pre-test are presented in Table A-1 and summarized in Table A-2 (See Appendix A). As illustrated, very few of the students received high scores or scores exceeding "20", the mean standard score attained by the group of college-bound seniors (Interpretive Guide for ACT Research Service, 1966-67 Edition). For example, only 8.1 percent of the students participating in the study received a composite score of 20 or more. Further, the composite score mean of the sample group was 12.56, which was equivalent to the lowest 8th percentile.

Similarly, few of these students received scores above the national norm in each of the discipline areas. For example, 89.9 percent scored below the national norm in English; 89.1 percent, mathematics; 86.9 percent, in the social sciences; and 89.1 percent, in the natural sciences. Overall, participants in the study did not perform well on the ACT test battery, as the mean scores fell below the national normative scores and were generally ranked below the 12th percentile.

The Science Research Associates Verbal test (SRV) was also administered to the original sample group in Fall, 1967 and again in Spring, 1968. This test was designed to indicate general intelligence and the level of intelligence in relation to other

persons in terms of ability to learn, to solve problems, to foresee and plan and to think creatively and quickly. The pre-test results (Table A-4) indicate that only twelve percent of the students in the sample of 364 obtained a quotient rank of "above average" or "superior". Further, only 33 percent obtained "average" scores and more than half (56 percent) were classified as being below average. Overall, the results of the SRA pre-test would have predicted poor performance in college for 46 percent of these students, average performance for 42 percent of them and good performance for only twelve percent of them.

The post-test results (Table A-5) obtained after one year of college were slightly higher. Eighteen percent of the students obtained a rank of "above average" or "superior"; 44 percent a rank of "average"; and only 38 percent a rank of "below average".

Table 4 summarizes the undergraduate grade-point average achieved by the participants by the end of the senior year. The mean grade-point average was 2.86 for the 121 persons participating in the follow-up survey. As shown, the average grade-point average for females (3.05) exceeded that for males (2.55). However, grade-point average data were not provided for 15.6 percent of the males (12) and 13.6 percent (6) of the females.

Undergraduate degrees were obtained in a wide range of areas, including education, social sciences, fine arts, foreign languages, natural sciences, business administration and pre-professional programs. The largest percentage (30.5 percent) of graduates held degrees in the social sciences, followed by business administration (12.4 percent) and education (12.4 percent). Many of the social science majors were also preparing for careers in education. Table A-6 illustrates the distribution of undergraduate majors by sex.

TABLE 4

Undergraduate Grade-Point Average, By Sex

Range of Grade-point Averages	FEMALE Number	FEMALE Percent	MALE Number	MALE Percent
3.70 - 4.00	--	---	--	---
3.50 - 3.79	4	5.2	2	4.5
3.20 - 3.49	7	9.1	1	2.3
2.80 - 3.19	16	20.8	7	15.9
2.50 - 2.79	22	28.6	12	27.3
2.20 - 2.49	14	18.2	11	25.0
1.80 - 2.19	2	2.6	5	11.4
No response	12	15.6	6	13.6
Total	77	100.0	44	100.0

Source: These data were obtained from the selected undergraduate institutions.

Educational Attainment after Graduation

After the attainment of the bachelor's degree, 35.5 percent of the respondents (43) had earned master's degrees and 2.4 percent (3) had obtained "other" professional degrees by the time of the follow-up study (Table 5). Only one person had obtained a doctorate degree. As shown, a larger proportion of females than males had obtained master's degrees.

TABLE 5

Highest Degree Held, By Sex

Type of Degree	Female		Male	
	Number	Percent	Number	Percent
Bachelors	46	59.7	28	63.6
Masters	30	39.0	13	29.5
Doctoral	--	----	1	2.3
Professional	1	1.3	2	4.6
Total	77	100.0	44	100.0

When asked about the highest degree toward which they were working, 23.1 percent of the 121 respondents indicated that they were pursuing additional degrees, including those respondents whose highest degree held was the baccalaureate and those who already held other graduate degrees. When analyzed by sex, the results indicate that 20.5 percent of the males and 24.7 percent of the females were working toward degrees beyond the baccalaureate (Table 6).

TABLE 6

Highest Degree Working Toward, By Sex

Degree	Female Number	Female Percent	Male Number	Male Percent
None	28	36.4	16	36.4
Masters	12	15.6	6	13.6
Doctoral	4	5.2	1	2.3
Other Professional	3	3.9	2	4.5
No Response	30	39.0	19	43.2
Total	77	100.0	44	100.0

In terms of the number of years of graduate or professional study completed, 64.5 percent (78) of the respondents had pursued either at least one semester beyond the bachelor's or had completed a graduate degree. Of the 33.9 percent (41) who had not begun graduate study, 92.7 percent had planned to continue their education in the future (See Table 7). As noted, nearly 50 percent of the females had completed one or two years of graduate or professional study.

The data revealed that graduate degrees had been received from a wide range of institutions located in states from Florida to Pennsylvania, Illinois to California, and Texas. Institutions granting graduate degrees to respondents encompassed both public and private institutions, as well as many prestigious schools.

Overall, the data revealed that 38.9 percent (47) of all the respondents had completed a graduate degree at the time of the study (Tables 7 and 8). Another 25.6 percent (31) had engaged in some type of post-baccalaureate study.

TABLE 7

Number of Years of Graduate or Professional Study Completed, By Sex

Graduate/Professional Study	Female Number	Female Percent	Male Number	Male Percent
None, don't plan to do graduate study	1	1.3	3	6.8
None, but plan to enroll in future	23	29.9	14	31.8
Have completed				
One semester	7	9.1	3	6.8
One year	15	19.5	7	15.9
Two years	22	28.6	8	18.2
Three years	4	5.2	4	9.1
Four years	3	3.9	4	9.1
Five years or more	1	1.3		
No response	1	1.3	1	2.3
Total	77	100.0	44	100.0

TABLE 8

Summary of Graduate Educational Attainment, By Sex

Level of Graduate Attainment	Female Number	Female Percent	Male Number	Male Percent	Total	
Graduate						
Masters	30	39.0	13	29.5	43	35.5
Other	1	1.3	3	6.8	4	3.3
Some, no degree	21	27.3	10	22.7	31	25.6
No Graduate Education	24	31.2	17	38.6	41	33.9
No Response	1	1.3	1	2.3	2	1.7
Total	77	100.0	44	100.0	121	100.0

With regard to the number of years involved in completing graduate or professional degrees, the results of the study showed an average of 3.5 years required to complete the master's degree and an average of 4 years required to complete the doctoral or "other" professional degree. However, the range for the number of years spent in obtaining the master's degree varied from one to seven years. Respondents obtaining the doctoral or other professional degree devoted from one to six years in doing so (see Tables 9 and 10).

TABLE 9

Elapsed Time in Receiving Masters Degree, By Sex

Elapsed Time in Years	Female		Male	
	Number	Percent	Number	Percent
1 - 3	10	33.3	9	69.2
4 - 6	18	60.0	3	23.0
7 - 9	--	----	1	7.8
No Response	2	6.6	-	----
Total	30	100.0	13	100.0

TABLE 10

Elapsed Time in Receiving Doctorate/Professional Degree, By Sex

Elapsed Time in Years	Female		Male	
	Number	Percent	Number	Percent
1 - 3	1	100.0	-	-----
4 - 6	-	-----	3	100.0
Total	1	100.0	3	100.0

When asked about obstacles which contributed to the delay in completing graduate studies, the most frequently mentioned response focused on financial problems (Table 11). Approximately 26 percent of the females and 40 percent of the males experienced financial problems, including loss of fellowship support. Expenses for graduate study were met by respondents through fellowships, scholarships, employment opportunities and other sources such as savings, G.I. benefits, loans, and support from relatives. Overall, fellowships covered an average of 40 percent of expenses; employment 20 percent; and other sources, an additional 40 percent for both males and females combined. Fourteen (11.6 percent) of the respondents had 81 to 100% of their expenses covered by fellowships or grants. Four females (5.1 percent) of the total number of students with graduate study used employment income to pay for most of their expenses, while 26.9 percent of the total sample (males and females combined) found financial support for 81 to 100 percent of their expenses from other sources (Table 12).

Of the 121 respondents, 14.8 percent (18) indicated that they were currently enrolled in school. In terms of meeting the costs of graduate education, one third were receiving fellowships ranging in dollar amounts from $500 to more than $6,000 (Table 13). The average amount was $1080. Five (27.8 percent) were using employment income to meet graduate study costs. The mean amount from employment sources was $2,000. Other sources of income (an average of $1,615) provided additional financial support for 72.2 percent of those pursuing graduate study. It is important to note here, however, that there was a large proportion of "no response" in each area of support for college expenses.

TABLE 11

Obstacles to Graduate Study, By Sex

(N=78)

Type of Obstacle	Number	Percent	Number	Percent	Total Number	Total Percent
Loss of fellowship	1	1.9	4	15.3	5	6.4
Other financial problems	13	25.0	6	23.7	19	24.3
Family obligations	7	13.5	2	7.7	9	11.5
Transferred	2	3.8	-	---	2	2.6
Changes in academic interest	2	3.8	2	7.7	4	5.1
Loss of interest	2	3.8	-	---	2	2.6
Making up prerequisites	-	-	1	3.8	1	1.2
Administration of stipend	1	1.9	1	3.8	2	2.6
Writing dissertation off campus while employed fulltime	-	-	1	3.8	1	1.2
Other problems	6	11.8	5	19.2	11	14.0

Notes: These percentages are based on the 78 respondents who had engaged in some form of post-baccalaureate education. This included 51 females and 27 males.

Table 12

How Expenses were Met for Graduate Study By Sex of Respondent

Amount by Percentage of Total Expenses	Fellowship				Employment				Other			
	Female		Male		Female		Male		Female		Male	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1 - 20%	2	3.8	1	3.8	7	13.5	8	29.6	6	11.8	7	26.9
21 - 40%	2	3.8	1	3.8	4	7.7	3	11.5	4	7.7	1	3.8
41 - 60%	8	15.4	5	19.2	2	3.8	1	3.7	1	1.9	1	3.8
61 - 80%	2	5.8	5	19.2	3	5.8	1	3.7	1	1.9	2	7.7
81 - 100%	11	21.2	3	11.5	4	7.7	-	-	15	28.8	6	23.7
No Response	27	51.9	11	42.3	32	61.5	13	50.0	25	48.0	9	34.6
Total	52	100.0	26	100.0	52	100.0	26	100.0	52	100.0	26	100.0

TABLE 13

Sources of Support for Current Graduate Study, By Sex

Dollar Amount	FELLOWSHIPS				EMPLOYMENT				OTHER			
	Female		Male		Female		Male		Female		Male	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
None	3	27.4	3	42.8	2	18.3	3	42.8				
$500	1	9.0							2	18.3	2	28.6
$1000		-	1	14.3			1	14.3	2	18.3	3	42.8
$1,500	1	9.0							1	9.0		
$2,000	1	9.0	1	14.3	1	9.0						
$2,500									1	9.0		
$3,000												
$4,000											1	14.3
$5,000							1	14.3				
$6,000	1	9.0			1	9.0	1	14.3	1	9.0		
No response	4	36.5	2	28.6	7	63.6	1	14.3	4	36.4	1	14.3
Total	11	100.0	7	100.0	11	100.0	7	100.0	11	100.0	7	100.0

The questionnaire used in the follow-up study also inquired about the total amount of loans accrued in obtaining both undergraduate and graduate educational preparation. For undergraduate preparation, 10.7 percent of the respondents indicated that they did not have loans. The amounts of loans obtained during the undergraduate years ranged from less than $500 to more than $10,000. The mean amount of undergraduate loans was $1,557, with males having a slightly higher average loan amount ($2,775) than females ($1,356) (See Table 14).

TABLE 14

Total Amount of Undergraduate Loans, By Sex

Dollar Amount Range of Loan	Female		Male	
	Number	Percent	Number	Percent
None	6	7.8	7	15.9
$500 or less	6	7.8	2	4.5
$500-999	11	14.3	5	11.4
$1,000-1,999	11	14.3	9	20.5
$2,000-3,999	4	5.2	2	4.5
$4,000-5,999	--	----	--	----
$6,000-7,999	1	1.3	--	----
$8,000-9,999	--	----	--	----
$10,000-11,999	--	----	1	2.3
No response	38	39.4	18	40.9
Total	77	100.0	44	100.0

Males had slightly higher total loans for graduate study than did females. On the average, males had obtained loans averaging $3,156 and females had obtained loans averaging $2,230 in the pursuit of graduate or professional degrees. A greater percentage of males (58.2 percent) in comparison to females (49.0 percent) had indicated that they were not required to obtain loans for graduate study. Overall, loans for graduate study were considerably greater on the average than those for undergraduate study (Table 15).

TABLE 15

Total Amount of Graduate Loans, By Sex

Dollar Amount Range of Loan	Female		Male	
	Number	Percent	Number	Percent
None	26	50.0	15	57.6
$500 or less	2	3.8	1	3.8
$500-999	2	3.8	2	7.7
$1,000-1,999	4	7.7	1	3.8
$2,000-3,999	2	3.8	2	7.7
$4,000-5,999	3	5.8		
$6,000-7,999			1	3.8
$8,000-9,999			1	3.8
$10,000-11,999				
No Response	13	25.0	3	11.1
Total	52	100.0	26	100.0

Occupations

With regard to primary work activity, 96 or 79 percent of the respondents indicated that they were currently engaged in full-time employment (Table 16). This included 87 percent of the females and 65.9 percent of the males. An additional 7 males (15.9 percent) were engaged in military service. Part-time employment was the primary work activity for 4 respondents, three-fourths of whom were males. Only one respondent (female) indicated that she was a full-time student.

TABLE 16

Primary Work Activity, By Sex

Type of Primary Work Activity	Female		Male	
	Number	Percent	Number	Percent
Part-time Employment	3	3.9	1	2.3
Full-time Employment	67	87.0	29	65.9
Military	--	----	7	15.9
Unemployed, Looking for work	2	2.6	3	6.8
Unemployed, Not Looking	--	----	1	2.3
Full-time Student	1	1.3	--	----
No Response	4	5.2	3	6.8
Total	77	100.0	44	100.0

Of the total sample of 121 respondents, only 6 (5.0 percent) were unemployed (two-thirds of whom were male) at the time of the follow-up study. Overall, the majority of respondents were gainfully employed; only a few (11.6 percent) held part-time positions, were full-time students, or were unemployed.

The first employment opportunities pursued by the respondents included a diversity of occupations: teaching (29.0 percent); administration (5.0 percent); laboratory technicians (4.1 percent); school counseling (3.3 percent); and social work (3.3 percent) (Table A-7). Among the other types of first jobs undertaken were research and computer programming. Only 1.8 percent (1) of the participants worked in an unskilled capacity. Further, only 4 (5.2 percent) of the females indicated that their first occupation was that of housewife/homemaker.

Current occupations also reflected a diversity in work roles (Table A-8). Further, a number of additional occupations not included in the listing of first occupations appeared. These were: clergyman, systems analyst, farmer, nurse, veterinarian and journalist.

In comparing first and second occupations, the results showed that 41 or 33.9 percent of the respondents were still working in the same occupation (Table A-7 and A-8). In most instances, the observed changes in occupation were indicative of upward mobility. For example, a former computer programmer was currently working as a systems analyst and four former secretaries or clerks were now teaching in elementary or secondary schools. Again, only one person employed as an unskilled laborer.

In terms of salary received on current jobs, the respondents had personal incomes ranging from none to more than $25,000 (Table 17). The avera g e income for males approximated $14,650; for females, $12,400. Family incomes for the respondents were considerably

TABLE 17

Salaries of Respondents, By Sex

Income	Female Number	Female Percent	Male Number	Male Percent
None	1	1.3	--	----
Below $7,000	4	5.2	1	2.3
$7,000-9,999	10	13.0	6	13.6
$10,000-11,999	20	26.0	4	9.1
$12,000-13,999	16	20.8	8	18.2
$14,000-16,999	16	20.8	11	25.0
$17,000-19,999	5	6.5	6	13.6
$20,000-24,999	3	3.9	7	15.9
$25,000-29,999	-	----	1	2.3
No Response	2	2.6	--	----
Total	77	100.0	44	100.0

higher, with an overall average of $20,100 for the entire sample. The family income for male respondents had a mean of $20,140; for females, $19,940.

Table 18 summarizes family income by sex. The family incomes of females ranged from $7,000-$9,999 to $40,000 to $49,999, with 10% of them having incomes of $10,000 to $11,999: another 10%, $30,000 to $34,999; and a third (10 percent), $14,000 to $16,999. The modal family income range for females was $20,000 to $24,999, while the similar index for males was $14,000 to $16,999, with more than 30 percent of them having incomes in the $20,000 to $29,999 range.

TABLE 18

Family Income of Respondents, By Sex

Income Range	Female		Male	
	Number	Percent	Number	Percent
Below $7,000	--	----	-	----
$7,000-9,999	3	3.9	2	4.5
$10,000-11,999	8	10.4	2	4.5
$12,000-13,999	5	6.5	3	6.8
$14,000-16,999	7	9.1	9	20.5
$17,000-19,999	4	5.2	2	4.5
$20,000-24,999	11	14.3	7	15.9
$25,000-29,999	7	9.1	7	15.9
$30,000-34,999	8	10.4	1	2.3
$35,000-39,999	6	7.8	1	2.3
$40,000-49,999	3	3.9	2	4.5
$50,000 and over	--	----	1	2.3
No Response	15	19.5	7	15.9
Total	77	100.0	44	100.0

The results of the study also revealed that participants were currently working for a diverse group of employers (Table A-9). The larges percentage (28.1 percent) were working in elementary or secondary education, followed by 9.9 percent in state and local government, 8.3 percent in the federal government and another 8.3 percent in other private companies or firms, including utilities and services. An additional 7.4 percent were employed in colleges or professional educational institutions and 5.0 percent were self-employed.

When analyzed by sex, it was observed that females were more likely than males to be employed in elementary and secondary education and non-profit organizations (Table A-9). On the other hand, male respondents were more apt (percentage-wise) to be

currently hold supervisory positions. A substantial, but smaller percentage (32.5 percent) of the females supervised two or more persons. In the majority of the cases (35.1 percent of the females and 29.5 percent of the males) the current job was not obtained directly after completion of the highest degree. This supports, in part, previous findings that approximately two-thirds of the participants had changed jobs or experienced some occupational mobility.

Moreover, most of the respondents did not experience difficulty in finding their current job; nor did the majority of the respondents have to take a cut in pay (Table A-10). On the other hand, a substantial number (49.4 percent of the females and 38.6 percent of the males) felt that their current salary was below their level of qualifications (Table A-12).

More than half of the females (64.9 percent) and 56.8 percent of the males were working in the field for which they had been trained. Moreover, approximately 60 percent of both the males and females believed that their current job was part of their long-range career goals. Forty-eight percent of the females and 66 percent of the males stated that the current job offered opportunities for advancement. More males (52 percent) than females (31 percent) perceived that discrimination was not a problem in terms of advancement.

In summary, most of the respondents participating in the follow-up study were (1) employed in full-time positions, (2) satisfied with their jobs (in that they considered their jobs to be part of their long-range career plans, (3) not required to take a cut in pay, and (4) offered opportunities for advancement. Specifically, 70.1

percent of the females and 63.6 percent of the males presently believed that they held "good" jobs and a substantial number of both males and females expressed the desire to remain in their current jobs. In the majority of cases (62.0 percent), respondents were working in the field for which they had been trained and were earning an average salary of approximately $12,800.

Self Assessment of Success

The participants were asked to compare themselves with others of similar age and qualifications by ranking their success according to the following categories: "highest 10 percent", "above average", "average", "below average" and "lowest 10 percent". In general, most of the respondents believed their success to be at least average while 35.5 percent of them perceived themselves to be "above average" and while 13.2 percent saw themselves to be in the highest 10 percent. As indicated by Table 19, the results showed that males were more likely than females to rank themselves slightly higher. Appriximately 58 percent of the males in comparison to 33 percent of the females considered themselves to be at least above average (Table 19). In general, the self-assessment results indicated that the respondents in the follow-up study perceived themselves to be fairly successful in relation to their peers.

Correlation of Selected Dependent Variables with GPA

An effort was made to determine the level of statistical significance between grade-point average and the following selected dependent variables: salary, self-perception of success, highest degree held, job-fit with long-range plans and assessment of current job as a good job. The results (Table 20) indicated that there

was no significant statistical relationship between grade-point average and most of these variables. However, a significant relationship was observed between salary and grade-point average.

TABLE 19

Self Perception of Success in Relationship to Others, By Sex

Self Perception of Success	Female		Male	
	Number	Percent	Number	Percent
Highest 10 percent	7	9.1	9	20.5
Above Average	26	33.8	17	38.6
Average	36	45.8	10	22.7
Below Average	4	5.2	5	11.4
Lowest 10 percent	1	1.3	--	----
Does Not Apply	2	2.6	1	2.3
No Response	1	1.3	3	4.5
Total	77	100.0	44	100.0

TABLE 20

X^2 Distribution of GPAs with Selected Dependent Variables

Variables	X^2	DF	Significance
Salary	80.29	54	.012
Self Perception of Success	34.79	36	.526
Highest Degree Held	26.58	30	.645
Job Fits into Long-Range Plans	6.50	12	.889
Assessment of Current Job as "Good"	7.12	12	.849

A second correlational analysis revealed that perception of success was related to salary (X^2 = 72.07, df = 54, S = .051) and to highest degree held (X^2 = 54.17, df = 30, S = .004).

Summary of Findings

In summary, the salient findings of this study were:

Undergraduate Background

- The majority of respondents attained scores on the ACT battery which were less than the standard score of 20. The mean scores generally fell below the 12th percentile, indicating that 88 percent of the persons in the norm group had higher test scores.
- In terms of overall intelligence as measured by the SRV verbal test, only 12 percent of the original 364 participants ranked "above average" on the initial pre-test, while 56 percent were rated as below average. Slightly higher scores were received on the post-test given in the spring of the freshman year.
- Participating students majored in a variety of areas. Commonly cited majors were social science (30.5 percent), education (12.4 percent) and business administration (12.4 percent).
- The mean grade-point average for the sample of 121 students was 2.86. The average grade-point average for females and males was 3.05 and 2.55, respectively.

Occupational Status

- The majority (79 percent) of the respondents were employed full-time by school systems (primarily elementary school and secondary school teachers), non-profit organizations, or the state, local or federal government.

- Considerably more females (87 percent) than males (66 percent) were employed full-time. An additional 16 percent of the males were involved in military service.

- Only 5 percent of the respondents were unemployed at the time of the study. A number of others (5.6 percent) were working part-time, were students or housewives.

- The majority of respondents were employed in professional capacities. Only 13 percent were currently working in unskilled positions. Further, only 1.3 percent were currently employed in clerical/secretarial jobs.

- The salaries of the respondents ranged from less than $7,000 to more than $25,000. The average salary for females was $12,400; for males, $12,650.

- Family income was considerably higher than personal salaries. The average family income for females was $19,340; for males, $20,140.

- Respondents experienced far fewer problems with their current positions than with their first jobs. The most frequently mentioned problem on both the first and current jobs was racial discrimination.

- In general, respondents were favorably disposed toward their current jobs. Most were working in the field for which they were trained and saw their current jobs as part of their long-range career goals. In addition, the majority of the respondents felt that they currently had "good" jobs which offered opportunities for advancement.

Educational Attainment

- The 121 participants in the follow-up survey had obtained bachelor's degrees in a wide range of academic areas.

- Overall, 64.5 percent had engaged in graduate study beyond the baccalaureate degree. Forty-three had completed master's degrees, 4 had completed doctorate or professional degrees and 33 had taken one semester or more of graduate study. There were 18 respondents who indicated that they were working on master's degrees and 10 who were pursuing doctoral or other professional degrees.

- An average of 3.5 years was required to obtain a master's degree and 4 years to earn a doctoral or other professional degree.
- Of the 41 persons who had not engaged in graduate study, 92.7 percent planned to continue their education in the future.
- The most frequently mentioned obstacle to completion of graduate study was financial problems.
- On the average, 40 percent of expenses for graduate study were met by fellowships; 20 percent, by employment; and 40 percent, from other sources, including savings, loans, family assistance, GI Bill and employee benefits.
- Fifty-two (43 percent) of the respondents indicated that they had taken out loans for undergraduate study. The mean amount of loans for both sexes was $1,542.
- Twenty-one (26.9 percent) of the respondents pursuing graduate study had assumed loans averaging $2,679.

Self-Assessment of Success

Respondents generally viewed themselves as being fairly successful in comparison with others in their peer group. Thirteen percent perceived themselves to be in the highest 10 percent, while another 35.5 percent believed their success to be at least above average.

DISCUSSION

The methodological problems inherent to this study (i.e., use of judgmental sampling, small sample size) do not permit any conclusive statements to be made about the predictive powers of ACT scores for the career success of blacks attending the selected historically black institutions. Nevertheless, this does not negate the fact that the results of the study have powerful implications for future planning and thought regarding the issue of equity in selective admissions in higher education.

Few of the 121 participants in this study would have been admitted to the traditional American college or university based on their test scores. As indicated, more than 90 percent of these students scored below the mean (standard score of 20) for college-bound seniors. Further, poor or average performance was predicted for 92 percent of them.

The juxtaposition of the academic promise of the participants as depicted by test scores against their reported cumulative undergraduate grade-point averages and career status graphically underscores the potential fallacy implicit in the use of test scores as predictors for minority students. The mean cumulative grade-point average for the group was 2.86, with a mean of 3.05 for females and 2.55 for males. It was predicted that 53 percent of the original sample group (364 students) would achieve GPAs of 1.49 or less.

Family and personal income are two of the most critical indicators of the returns of postsecondary education. As noted, 89 percent of the students in the original sample were from families with annual incomes of $5,500 or less. The national median income for blacks at that time (1968-69) was approximately $6,279 as opposed to a national norm of $9,867 (Statistical Abstract of the United States, 1978).

The family income levels of the participants in the follow-up study outstripped that of their parents by approximately 400 percent. The mean family income for females was $19,940; for males, $20,140. Further, the reported family incomes not only surpassed the national norm for all families in 1977 ($16,060), but also that for blacks (9,485).

The figure for males approximated the national norm for black family heads with 4 or more years of college (21,107). If the individuals in the sample had not gone to college, it is estimated that the family incomes of approximately 50 percent of them would have been less than $9999 (p. 457) and that more than 25 percent of them would have been umemployed (The Condition of Education, 1978, p. 14). As observed, the majority of the respondents were employed full-time. Also, it is significant to note that more than a third of them had family incomes within the $20,000 to $34,999 range.

The personal incomes of the respondents were significantly lower than their combined family income, but higher than the national norm. The mean salary for black females and black males was $12,400 and $14,650, respectively. Nationally, in 1977, black females had mean personal incomes of $5,083 as opposed to a mean of $7,743 for black males (p. 463). The national norm for white females and males was $5,349 and $12,539, respectively. Unlike Finley, Horseley et al., a significant association was noted between grade-point average and salary scale.

The income levels of the sample group no doubt reflected both their academic accomplishments beyond the baccalaureate degree and their academic status. Consistent with the findings of El-Khawas and Bisconti as well as the degree aspirations of the original sample, a substantial proportion of the respondents had obtained master's degrees and a few had earned doctoral and professional degrees (Table 21). The length of time that the respondents spent completing their graduate degree appeared to approximate the natural trend for blacks.

TABLE 21

Degrees Aspired to and Held by Members of the Original and Follow-Up Study Sample, By Percentage Distribution

Type of Degree	Highest Degree Aspired (N = 364)	Highest Degree Held (N = 121)
Bachelor's	14	61
	(48)	(74)
Master's	47	35
	(159)	(43)
Doctoral	15	1
	(52)	(1)
Professional	11	3
	(36)	(3)

The current occupation of the respondents spanned a complex of professional fields, with concentrations in teaching at the elementary, secondary and college levels. Inasmuch as large numbers of the respondents (1) were working in the field of training, and (2) had not had a difficult search for their current jobs nor (3) taken a cut in pay, it would appear that they were productive and valued members of the labor market. Whereas, lack of experience was

frequently cited as a problem with first jobs, it can be inferred that most had gained substantial work experience which, in turn, was an enhancement in obtaining their current jobs. Hence, there was considerable job mobility. Almost two-thirds of the respondents had changed their job at least once. Undergraduate grade-point average was not statistically related to whether respondents believed that their current job fit into their long-range plans or whether or not they felt they had "good" jobs.

In summary, a significant proportion of the respondents not only held professional jobs and were able to continue their education, but also, most importantly, the majority of them perceived themselves as being somewhat successful in relationship to their peers. Self-perception of success was statistically independent of undergraduate grade-point average, but statistically associated with salary and highest degree held.

In conclusion, it appeared that the participants were able to achieve considerable educational attainment and career success despite their initial scores on standardized tests. Specifically, it appears that:

1. Standardizes test scores are not valid predictors of the future educational attainment and career success of blacks.
2. Undergraduate grade-point averages are valid predictors of the future educational success of blacks to the extent that higher grade-point average may be associated with higher salaries.
3. The historically black colleges provide an opportunity to obtain a bachelor's degree, and thereby enhance access to further education attainment and career success to students who more than likely would not be admitted to college under traditional admissions criteria.

RECOMMENDATIONS

In light of the findings and questions evolving from this study, the following researchable issues are posed for future study.

1. A subsequent follow-up study in five years of the same cohort of students (the entire original sample of 364 students) might be conducted to ascertain further life achievements and career patterns. Specifically, the study might examine along with educational attainment and career mobility, the community and professional contributions of these former students. Moreover, to what extent do these persons perceive that having a bachelor's degree has improved their opportunities for success? It is also recommended that this study include a scale or index of "success" upon which to correlate standardized test scores and grade-point averages.

2. A more in-depth examination might also be taken of the aspects, services or programs of the historically black college which were of value to graduates in terms of achievement in their life endeavors. These findings might then be compared with a similar cohort of black students who had received their degree from a predominantly white institution.

3. The results of follow-up studies on graduates from historically black colleges in general, might also be viewed in terms of developing reliable predictors for undergraduate performance and for future life endeavors for blacks. In other words, are there some basic characteristics or proclivities of students which can predict their performance in college and afterwards? Still yet, are there some institutional characteristics which are conducive to undergraduate performance and future life endeavor?

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APPENDIX A

SELECTED TABULATED DATA

TABLE A-1

Distribution of ACT Scores - Fall 1967

N = 359

ACT Score	Composite		English		Mathematics		Soc. Sci		Nat. Sci	
	Number	%	Number	%	Number	%	Number	%	Number	%
36	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	1	(.3)	-	-
27	-	-	-	-	2	(.5)	1	(.3)	-	-
26	-	-	-	-			6	(1.7)	2	(.5)
25	-	-	1	(.3)	2	(.5)	5	(1.4)	-	-
24	-	-	2	(.5)	2	(.5)	5	(1.4)	-	-
23	2	(.5)	5	(1.4)	5	(1.4)	7	(1.9)	7	(1.9)
22	5	(1.4)	7	(1.9)	8	(2.2)	5	(1.4)	8	(2.2)
21	18	(5.0)	12	(3.3)	4	(1.1)	10	(2.8)	11	(3.1)
20	4	(1.1)	13	(3.6)	16	(4.5)	7	(1.9)	10	(2.8)
19	13	(3.6)	13	(3.6)	8	(2.2)	16	(4.5)	9	(2.5)
18	12	(3.3)	13	(3.6)	28	(7.8)	16	(4.5)	10	(2.8)
17	17	(4.7)	27	(7.5)	10	(2.8)	12	(3.3)	14	(3.9)
16	23	(6.4)	37	(10.3)	17	(4.7)	24	(6.7)	32	(8.9)
15	31	(8.6)	30	(8.4)	25	(7.0)	14	(3.9)	20	(5.6)
14	23	(6.4)	25	(7.0)	18	(5.0)	15	(4.2)	30	(8.4)
13	22	(6.1)	24	(6.7)	26	(7.2)	17	(4.7)	26	(7.2)
12	31	(8.6)	19	(5.3)	24	(6.7)	12	(3.3)	23	(6.4)
11	33	(9.2)	8	(2.2)	34	(9.4)	24	(6.7)	33	(9.1)
10	40	(11.1)	16	(4.5)	33	(9.1)	27	(7.5)	35	(9.6)
9	15	(4.2)	16	(4.5)	-	-	19	(5.3)	24	(6.7)
8	24	(6.7)	19	(5.3)	5	(1.4)	23	(6.4)	30	(8.4)
7	15	(4.2)	22	(6.1)	23	(6.4)	18	(5.0)	6	(1.7)
6	15	(4.2)	19	(5.3)	-	-	10	(2.8)	4	(1.1)
5	3	(.8)	12	(3.3)	21	(5.8)	20	(5.6)	6	(1.7)
4	5	(1.4)	3	(.8)	-	-	11	(3.1)	2	(.5)
3	3	(.8)	8	(2.2)	1	(.3)	12	(3.3)	4	(1.1)
2	3	(.8)	3	(.8)	19	(5.3)	8	(2.2)	1	(.3)
1	1	(.3)	5	(1.4)	28	(7.8)	15	(4.2)	7	(1.9)
Total	356	100.0	359	100.9	359	100.0	359	100.0	359	100.0

TABLE A-2

Summary of ACT Pre-Test Scores

ACT Scores	Composite		English		Mathematics		Social Sciences		Natural Sciences	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
20 - 36	29	8.1	40	11.1	39	10.9	47	13.1	39	10.9
15 - 19	96	26.7	120	33.4	88	24.5	82	22.8	86	24.0
10 - 14	149	41.5	92	25.6	135	52.1	95	26.4	149	41.5
5 - 9	73	20.3	88	24.5	49	13.6	89	24.8	71	19.8
4 or less	12	3.3	19	5.3	48	13.4	46	12.8	14	3.9
Total	359	100.0	359	100.0	359	100.0	359	100.0	359	100.0

TABLE A-3

Comparison of ACT Scores of Respondents with National Norm

Score		Follow-Up Participants (N = 359)	ACT Norm (N = 150,053)
Composite	Mean	12.56	19.40
	SD	4.59	4.96
English	Mean	12.98	19.53
	SD	5.23	6.33
Math	Mean	11.90	20.29
	SD	6.11	5.81
Social Science	Mean	11.98	20.47
	SD	6.42	5.99
Natural Science	Mean	12.99	20.06
	SD	5.02	4.83

Source: The national norms presented here are based on the 329 colleges participating in the ACT Research Service in 1963-1964 and are taken from the Interpretive Guide for ACT Research Services, 1966-1967 Edition.

TABLE A-4

SRV Pre-Test Scores

Quotient Rank	Pre-Test-Fall '67 Frequency	Percent	
130 - 200	10	3	Superior
110 - 129	32	9	Above Average
90 - 109	119	33	Average
70 - 89	157	43	Below Average
0 - 69	46	13	Dull
Total	364	100	

TABLE A-5

SRV Post-Test Scores

Quotient Rank	Post-Test-Spring '68 Frequency	Percent	
130 - 200	10	3	Superior
110 - 129	54	15	Above Average
90 - 109	159	44	Average
70 - 89	110	31	Below Average
0 - 69	26	7	Dull
Total	359	100	

TABLE A-6

Undergraduate Majors of Respondents by Sex

Major	Female		Male	
	Number	Percent	Number	Percent
Accounting	1	1.3	2	4.5
Art	-	-	1	2.3
Animal Science	-	-	1	2.3
Biology	4	5.2	1	2.3
Business Administration	4	5.2	6	13.6
Business Education	2	2.6	-	-
Chemistry	1	1.3	-	-
Child Health & Dev.	1	1.3	-	-
Classics	-	-	1	2.3
Economics	-	-	1	2.3
Electronics Technology	-	-	1	2.3
Elementary Education	7	9.1		
English	8	10.4	1	2.3
French	4	5.2	-	-
History	9	11.7	6	13.6
Home Economics	2	2.6	-	-
Industrial Arts	-	-	2	4.5
Mathematics	4	5.2	8	18.2
Medical Technology	2	2.6	-	-
Music	1	1.3	-	-
Political Science	1	1.3	4	9.1
Pre-Law	-	-	2	4.5
Pre-Med	1	3.9	-	-
Physical Education	3	3.9	-	-
Psychology	5	6.5	1	2.3
Religion	-	-	2	2.3
Sociology	5	6.5	3	6.8
Social Science	2		-	-
Special Education	5	6.5	-	-
Speech & Drama	2	2.6	-	-
Liberal Studies	1	1.3	-	-
No Response	3	3.9	2	4.5
Total	77	100.0	44	100.0

TABLE A-7

FIRST OCCUPATIONS OF RESPONDENTS, BY SEX

Occupational Type	Female		Male	
	Number	Percent	Number	Percent
Accountant	2	2.6	2	4.5
Administrative Asst.	1	1.3	1	2.3
Administrator, Manager	3	3.9	3	6.8
Business Salesman/Buyer	-	---	2	4.5
Computer Programmer	1	1.3	1	2.3
Housewife	4	5.2	-	---
Lab Tech. (Health Rel'd)	5	6.5	-	---
Lawyer	-	---	1	2.3
Mathematician	1	1.3	-	---
Military	1	1.3	5	11.4
Research Assistant	1	1.3	2	4.5
School Counselor	2	2.6	2	4.5
Social Scientist	1	1.3	-	---
Secretary/Clerk	4	5.2	1	2.3
Social Worker	4	5.2	-	---
Teacher-Elementary	20	26.0	3	6.8
Teacher-Secondary	6	7.8	4	9.1
Teacher-College	-	---	2	4.5
Skilled Trades	1	1.3	1	2.3
Cab Driver, Bartender	-	---	2	4.5
Other Semi-skilled	3	3.9	-	---
Laborer, Unskilled	-	---	1	2.3
Undecided or none	1	1.3	-	---
Other Occupation	12	15.6	8	18.2
No Response	3	3.9	3	6.8
Total	77	100.0	44	100.0

TABLE A-8

Occupational Type	Female		Male	
	Number	Percent	Number	Percent
Accountant	1	1.3	2	4.5
Administrative Asst.	2	2.6	2	4.5
Administrator, Manager	5	6.5	5	11.4
Business Salesman/Buyer	3	3.9	5	11.4
Clergy	-	---	1	2.3
Systems Analyst	2	2.6	2	4.5
Farmer	-	---	1	2.3
Lab Tech. (Health Rel'd)	3	3.9	-	---
Lawyer	-	---	1	2.3
Military	1	1.3	5	11.4
Research Assistant	2	2.6	-	---
School Counselor	2	2.6	-	---
Secretary/Clerk	1	1.3	-	---
Social Worker	5	6.5	1	2.3
Teacher-Elementary	17	22.1	2	4.5
Teacher-Secondary	13	16.9	3	6.8
Teacher-College	3	3.9	1	2.3
Technician (Industrial)	1	1.3	2	4.5
Veterinarian	-	---	1	2.3
Writer/Journalist	1	1.3	-	---
Skilled Trades	1	1.3	-	---
Laborer-Unskilled	1	1.3	-	---
Undecided or None	1	1.3	1	2.3
Other Occupation	11	14.3	5	11.4
No Response	1	1.3	4	9.1
Total	77	100.0	44	100.0

TABLE A-9

Current Employer of Respondents, by Sex of the Respondent

Type of Employer	Female		Male	
	Number	Percent	Number	Percent
Self Employed	2	2.6	4	9.1
Elementary or Secondary	30	39.0	4	9.1
College or University	4	5.2	4	9.1
Professional School	-	---	1	2.3
Hospital or Clinic	2	2.6	-	---
Small medical group Practice	1	1.3	-	---
Non-profit organization	3	3.9	-	---
Research organization	1	1.3	1	2.3
Retail or wholesale trade	-	---	5	11.4
Manufacturing or Mining	5	6.5	1	2.3
Other private companies	7	9.1	3	6.8
Military	1	1.3	7	15.9
State or local government	8	10.4	4	9.1
Federal Government	7	9.1	3	6.8
Not applicable	1	1.3	2	4.5
Other Employer	4	5.2	3	6.8
No Response	1	1.3	2	4.5
TOTAL	77	100.0	44	100.0

TABLE A-10

Problems Confronted by Respondents on First Job, By Sex

Type of Problems	Female		Male	
	Number	Percent	Number	Percent
Lack of experience	9	11.7	9	20.5
Inadequate training in under-graduate school	2	2.6	3	6.8
Family Obligations	3	3.9	1	2.3
Racial Discrimination	16	20.8	10	22.7
Qualifying Exams	-	----	2	4.5
Age	1	1.3	1	2.3
Sex	6	7.8	-	----
Other	3	3.9	4	9.1
No Problems	40	52.0	20	45.5

TABLE A-11

Problems Confronted by Respondents on Current Job, By Sex

Problem	Female		Male	
	Number	Percent	Number	Percent
Lack of Experience	-	---	1	2.3
Inadequate Training in Undergraduate School	2	2.6	2	4.5
Family Obligations	2	2.6	-	---
Racial Discrimination	9	11.7	4	9.1
Qualifying exams	4	5.2	1	2.3
Age	3	3.9	2	4.5
Sex	2	2.6	1	2.3
Other	3	3.9	5	11.4
No Problems	45	58.5	21	47.7

TABLE A-12

ASSESSMENT OF CURRENT JOB, BY SEX

Question	Yes	No	No Response	Yes	No	No Response
Is your position full-time permanent?	90.9	3.9	5.2	84.1	6.8	9.1
Do you supervise 2 or more persons?	32.5	61.0	6.5	52.3	36.4	11.4
Are you working in field trained for?	64.9	31.2	3.9	56.8	34.1	9.1
Did you take this job after completing highest degree you have?	35.1	65.0	3.9	29.5	61.4	9.1
Does it fit in with your long-range goals?	61.0	32.5	6.5	59.1	31.8	9.1
Does it offer chances for advancement?	48.1	46.8	5.2	65.9	25.0	9.1
Is there any kind of discrimination against you in advancement conditions?	31.2	61.0	7.8	52.3	38.6	9.1
Would you like to remain on the job longer?	58.4	36.4	5.2	50.0	38.6	9.1
Did you take this job after a difficult job search:	33.8	61.0	5.2	31.8	56.8	11.4
Are you working for a salary considerably lower than you qualify for?	49.4	42.9	7.8	38.6	52.3	9.1
When you took this job, did you have to be retrained?	28.6	57.1	14.3	22.7	61.4	15.9
- take a cut in pay?	16.9	62.3	20.8	20.5	65.9	13.6
- think of it as a temp. job?	19.5	63.6	16.9	36.4	47.9	15.9
- consider it a good job?	87.0	5.2	7.8	75.0	15.9	9.1
Do you now consider it a good job?	70.1	23.4	6.5	63.6	27.3	9.1

APPENDIX B

ISE FOLLOW-UP QUESTIONNAIRE

THE INSTITUTE FOR SERVICES TO EDUCATION

Name: _____ _____

Address: ___ _____

City & State: _____ Zip Code: _____

If there are any errors in your name and address as shown above, please enter your correct name and address in the spaces below.

Name: _____

Address: _____

City & State: _____ Zip Code: _____

Directions: Your responses will be transferred to an optical scan sheet to be read by an optical scan reader. Your careful observance of these rules will be very important:

(1) Make heavy marks that fill the circle.

(2) Erase cleanly any answer you wish to change.

(3) Write only in designated areas.

(4) Answer all applicable questions.

1. Please indicate your primary work activities currently, and as of August of the last few years. (Mark one in each column.)

	Currently	Aug. 1971	Aug. 1972	Aug. 1973	Aug. 1974	Aug. 1975	Aug. 1976	Aug. 19
Working part-time	0	0	0	0	0	0	0	0
Working full-time	0	0	0	0	0	0	0	0
In military service, active duty	0	0	0	0	0	0	0	0
Unemployed, looking for a job	0	0	0	0	0	0	0	0
Unemployed, not looking for a job	0	0	0	0	0	0	0	0
Housewife	0	0	0	0	0	0	0	0
Undergraduate student, full-time	0	0	0	0	0	0	0	0
Undergraduate student, part-time	0	0	0	0	0	0	0	0
Graduate student, full-time (including law, thesis work, etc.)	0	0	0	0	0	0	0	0
Graduate student, part-time (including law, thesis work, etc.)	0	0	0	0	0	0	0	0
Medical student (including dentistry and veterinary veterinary)	0	0	0	0	0	0	0	0
Medical intern or resident	0	0	0	0	0	0	0	0
Post-doctoral fellow or trainee	0	0	0	0	0	0	0	0

2. What is the highest degree you now hold and what are your future degree plans? (Mark one in each column.)

	Highest Degree Now Held	Degree Working Toward	Highest Degree Planned by 1978	Planned After 1978
None	0	0	0	0
Associate (A.A., A.S., etc.)	0	0	0	0
Bachelor's (B.A., B.S., B.D., etc.)	0	0	0	0
Master's (M.A., M.S., etc.)	0	0	0	0
Ph.D. or equivalent (Sc.D., Ed.D., etc.)	0	0	0	0
M.D.	0	0	0	0
D.D.S., or D.V.M.	0	0	0	0
L.L.B., or J.D.	0	0	0	0
Other	0	0	0	0

If you have not received any degrees, skip to Question 4.

3. Please indicate the data and the name of the institution(s) from which you received your degree(s):

	Year Received	Institution	State
Bachelor's	_____	_____	_____
Master's	_____	_____	_____
Doctorate	_____	_____	_____
Prof. Degree	_____	_____	_____

4. What was your undergraduate grade point average for the entire time you attended college? (Mark one.)

3.80-4.00 (A)----O
3.50-3.79 (A-)---O
3.20-3.49 (B+)---O
2.80-3.19 (B)----O
2.50-2.79 (B-)---O
2.20-2.49 (C+)---O
1.80-2.19 (C)----O
1.50-1.79 (C-)---O
1.49-less (D)----O

5. What was (is):
   1. your first occupation after leaving school?
   2. your current occupation? (or most recent occupation, if not currently employed)
   3. your probably career occupation?

(Mark only one in each column.)

	First 1	Current 2	Probable 3
Accountant or actuary	O	O	O
Administrative assistant	O	O	O
Administrator, manager, exec.	O	O	O
Architect	O	O	O
Business salesman or buyer	O	O	O
Clergyman, religious worker	O	O	O
Clinical psychologist	O	O	O
Computer programmer	O	O	O
Computer scientist, systems analyst, etc.	O	O	O
Conservationist or forester	O	O	O
Creative or performing artist (musician, actor, painter, etc.)	O	O	O
Dentist	O	O	O
Dietician or home economist	O	O	O
Engineer	O	O	O
Farmer or rancher	O	O	O
Foreign service worker (including diplomat)	O	O	O
Housewife	O	O	O
Hygienist, dental or other	O	O	O
Librarian	O	O	O
Lab technician (health related)	O	O	O
Law enforcement officer	O	O	O
Lawyer (attorney)	O	O	O
Mathematician	O	O	O
Military service	O	O	O
Nurse	O	O	O
Optometrist	O	O	O
Pharmacist	O	O	O
Physician-family practice	O	O	O
Physician-other specialties	O	O	O
Research assistant	O	O	O
School counselor	O	O	O
School principal or superintendent	O	O	O
Scientist, biological	O	O	O
Scientist, physical	O	O	O
Scientist, social	O	O	O
Secretary/clerk	O	O	O
Social worker	O	O	O
Statistician	O	O	O
Therapist (physical, occupational, speech)	O	O	O
Teacher (elementary)	O	O	O
Teacher (secondary)	O	O	O
Teacher (college or university)	O	O	O
Technician (industrial, etc.)	O	O	O
Veterinarian	O	O	O
Writer or journalist	O	O	O
Skilled trades (including apprentice)	O	O	O
Cab driver, bartender, cashier	O	O	O
Other semi-skilled worker	O	O	O
Laborer-unskilled	O	O	O
Undecided or none	O	O	O
Other occupation	O	O	O

6. How well did your undergraduate education prepare you for:
   1. your first occupation after leaving school?
   2. your current occupation?
   3. your probable career occupation?

	First 1	Current 2	Probable 3
Very well	O	O	O
Well	O	O	O
Very little	O	O	O
Not at all	O	O	O

7. For your first and current jobs, please indicate how you obtained your position: (Mark one.)

	First	Current
Through relatives or friends	0	0
Through my college's placement office	0	0
Through an employment agency (public or private)	0	0
Through my professional organization's employment service, newsletter, etc.	0	0
By answering a want ad	0	0
By applying directly (calling, writing) to a possible employer	0	0
Through a professor or teacher	0	0
Other	0	0

8. Indicate your current (or most recent employer and your long run career employer. (Mark one for each column.)

	Current Employer	Career Employer
Self-employed (includ. partnership)	0	0
Elementary or secondary education	0	0
College or university	0	0
Professional school (medical, dental, law, etc.)	0	0
Hospital, clinic, etc. (public or private)	0	0
Large medical group practice (More than 10 in group)	0	0
Small medical group practice (10 or less)	0	0
Church, welfare or other nonprofit organization (excluding research)	0	0
Research organization or institute	0	0
Retail or wholesale trade	0	0
Manufacturing or mining	0	0
Other private companies or firms (utilities, services, etc.)	0	0
Military service	0	0
State or local government	0	0
Federal Government	0	0
Undecided	0	0
Not applicable (housewife, disabled, etc.)	0	0
Other	0	0

9. Did (Do) any of the following factors post serious problems for you on your first and current jobs?

Lack of job experience	0	0
Inadequate training in undergraduate school	0	0
Family obligations	0	0
Discrimination (race)	0	0
Qualifying exams	0	0
Age	0	0
Sex	0	0
Other	0	0
No problems	0	0

10. How would you rate your first and current job performances?

	First	Current
Very much above average	0	0
Slightly above average	0	0
Average	0	0
Slightly below average	0	0
Very much below average	0	0

11. A. How much of your current (or most recent) job do you devote to each of the following activities?
B. How much of your long run career job do you expect to devote to each?

(Mark all that apply. If not currently or recently employed, answer only for expected long run career)	A. CURRENT JOB: Major Amount (40% or more of time)	A. CURRENT JOB: Moderate Amount (less than 40%)	B. LONG RUN CAREER JOB: Major Amount (40% or more of time)	B. LONG RUN CAREER JOB: Moderate Amount (less than 40%)
Administrative or managerial duties	0	0	0	0
Teaching	0	0	0	0
Research (or Development)	0	0	0	0
Consulting	0	0	0	0
Service to patients or clients (including indirect)	0	0	0	0
Clerical-secretarial	0	0	0	0
Sales, promotion, public relations, advertising	0	0	0	0
Operations (production, quality control, testing, field work, etc.)	0	0	0	0
Writing, editing (creative, technical, etc.)	0	0	0	0
Other	0	0	0	0

12. Referring to the period since 1971, please indicate: (Mark one in each row.)

	None	One or less	Two	Three	Four	Five or more
I. The (approximate) number of years of full-time employment you have had since 1971	0	0	0	0	0	0
II. The number of years (since 1971) that your work primarily involved:						
Administrative activities	0	0	0	0	0	0
Teaching	0	0	0	0	0	0
Research or development activities	0	0	0	0	0	0
Operations production	0	0	0	0	0	0
Service to patients or clients	0	0	0	0	0	0
Consulting	0	0	0	0	0	0
Clerical-secretarial	0	0	0	0	0	0
Writing, editing	0	0	0	0	0	0

13. Which of the following are important to you in your choice of long run career occupations? (Mark all that apply.)

Job openings are generally available--0	Can make an important contribution to society--0
Rapid career advancement is possible--0	Can work with ideas--0
High anticipated earnings--0	Can be helpful to others--0
It's a well-respected or prestigious occupation--0	Have leadership opportunities--0
It provides a great deal of autonomy--0	Able to work with people--0
Chance for steady progress--0	Intrinsic interest in the field--0
Chance for originality--0	Enjoyed my past experience in this occupation--0
Can avoid pressure--0	

If you have not worked during the past year, skip to Question 15.

14. Please answer the following questions about your current job:

	Yes	No
Is your position full-time permanent?	0	0
Do you supervise two or more persons?	0	0
Are you working in the field you trained for?	0	0
Did you take this job right after completing the highest degree you now have?	0	0
Does it fit in with your long-range goals?	0	0
Does it offer good chances for advancement?	0	0
Is there any kind of discrimination against you in advancement, conditions, etc.?	0	0
Would you like to remain on this job longer?	0	0
Did you take this job after a difficult job search?	0	0
Are you working for a salary considerably lower than your qualifications would deserve?	0	0
When you took this job, did you:		
-have to be retrained?	0	0
-take a cut in pay?	0	0
-think of it as a temporary job?	0	0
-consider it a good job?	0	0
Do you <u>now</u> consider it a good job?	0	0

If you are currently employed, or if you are a full-time student, skip to Question 17.

15. Why are you not working? (Mark all that apply.)

- Left my job due to company cut-back---------0
- Illness, accident, or health problem--------0
- Involved with home/child care---------------0
- Travel, vacationing for an extended period of time----------0
- Did not want to work----------0
- Involved in extended studying or research---0
- Couldn't find a job appropriate to my qualifications----------0
- Prefer volunteer or community activity------0
- Moved to a new location, haven't found a job----------0
- Other----------0

16. Please answer each question:

	Yes
Have you been out of work:	
for more than six months?	0
for more than a year?	0
Do you have good prospects for finding a job to fit your training?	0
Are you considering going back to school?	0
Are you considering changing your field or type of work?	0
Did your unemployment occur <u>right after</u> you left school?	0
Do you expect to be out of work for quite a long time?	0

17.

A. How many years of graduate or professional study have you completed? (Try to convert part-time into full time equivalents - mark one)

- None, and don't plan to do graduate study----------0
- None, but plan to enroll in the future0

If your answer is either of the above, skip to Question 24.

- One semester----------0
- One year----------0
- Two years----------0
- Three years----------0
- Four years----------0
- Five years or more----------0

B. What is your current academic status and your chances of completing studies? (Mark one)

- Studies completed (including all requirements finished----------0
- Studies not completed:
- Will definitely finish----------0
- Will probably finish eventually------0
- May not finish----------0
- Unlikely to ever receive degree------0

C. If better jobs had been available when you finished college, would you still have enrolled for advanced study? (Mark one)

Yes----0 No----0 Maybe----0

18. Indicate which of the following requirements you are currently working on and which you have completed by now. (Mark all that apply.)

	Working On	Completed
Master's level requirements	0	0
Course work requirements	0	0
Residence requirements	0	0
Language or tool requirements	0	0
Dissertation topic approved	0	0
Collecting data for the dissertation	0	0
Draft of dissertation submitted	0	0
Dissertation approved	0	0

19. Are (were) any of the following serious obstacles to you, i.e., delaying your completion of graduate studies? (Mark all that apply.)

Loss of fellowship, scholarship, traineeship---------- 0

(continued - see top of page)

19. (continued)

Other financial problems----------
Family obligations----------
Major advisor left my school----------
I transferred from one school to another
Changes in academic interests----------
Loss of interest in studies----------
Making up prerequisites----------
Poor courses----------
Duties involved in a teaching assistantship----------
Duties involved in a research assistantship----------
Inaccessibility of faculty----------
Administration of stipend----------
Difficulties with qualifying exams------
Difficulties with language requirements-
Writing dissertation off-campus while employed full-time----------
Other dissertation difficulties (topic too broad, complex analysis, etc.)-----
Other----------

20. Please indicate how you met your expenses for advanced study by filling in the appropriate box(es). When added together, they should equal 100%. (Include both tuition and living expenses. Consider tuition as part of your expenses even if it was paid directly to your school.)

A. Fellowships, scholarships, traineeships, etc.	1-20%	21-40%	41-60%	61-80%	81-100
NSF	0	0	0	0	0
NIH, NIMH, PHS	0	0	0	0	0
NDEA	0	0	0	0	0
Other HEW	0	0	0	0	0
Other federal government	0	0	0	0	0
State or local government	0	0	0	0	0
School or university	0	0	0	0	0
Private foundations, organizations	0	0	0	0	0
Industry or business	0	0	0	0	0
Other fellowships, scholarships	0	0	0	0	0
B. Employment					
Faculty appointment	0	0	0	0	0
Teaching assistantship	0	0	0	0	0
Research assistantship	0	0	0	0	0
Other part-time employment during academic year	0	0	0	0	0
Other employment	0	0	0	0	0

20. (continued)

	1-20%	21-40%	41-60%	61-80%	81-100%
C. Other Sources					
Withdrawals from savings, assets	0	0	0	0	0
Spouse's earnings or funds	0	0	0	0	0
Support from parents or relatives	0	0	0	0	0
G.I. benefits	0	0	0	0	0
Federal government loans	0	0	0	0	0
State or local government loans	0	0	0	0	0
Commercial loans (banks, etc.)	0	0	0	0	0
Other loans	0	0	0	0	0
Partial aid from employer (tuition reimbursement or waiver, grants, etc.)	0	0	0	0	0
Other	0	0	0	0	0

If you are not currently enrolled, skip to Question 23.

21. If currently enrolled, please give your best estimate of:
A. Your sources for financing the past academic year of advanced study, and
B. Your total expenses for the past academic year.
(Consider tuition as an expense, even if paid directly to your school.)

A. Income Sources (Mark one amount for each)	None	$500	$1,000	$1,500	$2,000	$2,500	$3,000	$4,000	$5,000	$6,000 or more
Fellowship/scholarship/traineeship, etc.	0	0	0	0	0	0	0	0	0	0
Assistantship	0	0	0	0	0	0	0	0	0	0
Other employment of own	0	0	0	0	0	0	0	0	0	0
Savings	0	0	0	0	0	0	0	0	0	0
Governmental loans	0	0	0	0	0	0	0	0	0	0
G.I. benefits	0	0	0	0	0	0	0	0	0	0
Support from spouse	0	0	0	0	0	0	0	0	0	0
Support from parents, relatives	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
B. Expenses (Mark one amount for each.)										
Academic (including tuition, fees, lab, etc.)	0	0	0	0	0	0	0	0	0	0
Living (including dependents)	0	0	0	0	0	0	0	0	0	0

If you are not currently receiving financial assistance (fellowship, assistantship, etc.), skip to Q. 23.

22.

A. Indicate the duties required of you in return for your financial assistance: (Mark all that apply)

Teaching----------0
Research----------0
Lab Assistance----------0
Tutoring----------0
Grading papers, constructing exams----------0
Professional services----------0

B. If financial support had not been available, would you have: (Mark Yes for all that apply.)

	Yes
Discontinued your education entirely?	0
Interrupted your studies until support was available?	0
Enrolled at a different school?	0
Changed to a different field in which support was available?	0
Enrolled part-time instead of full-time?	0
Taken out a sizeable loan?	0
Worked while studying to support education?	0
Worked for a while to save, then study?	0

C. If you had not received an award or assistantship, what would have been your alternative funding source(s)? (Mark all that apply.)

Own employment----------0
Savings, assets----------0
Spouse's earnings, funds----------0
Commercial loans----------0
Government loans----------0
Support from parents, relatives--0
G.I. benefits----------0
Other----------0
None----------0

23. Indicate the total amount of loans (a) thus far obtained to finance your education, and (b) the absolute maximum amount of education debt you are willing to incur: (Mark one in each column.)

	Undergrad.	Graduate	Absolute Maximum (Total incl. all undergrad. and grad. loans
None	0	0	0
Less than $500	0	0	0
500-999	0	0	0
1,000-1,999	0	0	0
2,000-3,999	0	0	0
4,000-5,999	0	0	0
6,000-7,999	0	0	0
8,000-9.999	0	0	0
10,000-11,999	0	0	0
12,000-13,999	0	0	0
14,000-16,999	0	0	0
17,000 or more	0	0	0

24. If you ever interrupted your advanced studies, or instead had not enrolled at all, indicate which of the following were important reasons for your decision: (Mark all that apply.)

	Interrupted	Never Enrolled
Didn't finish undergraduate work		0
Lacked necessary coursework, grades, etc.		0
Applied, wasn't accepted		0
No adequate program where I live(d)	0	0
Took a job	0	0
Changed my career plans	0	0
Decided I did not need a further degree	0	0
Wanted to reconsider my goals and interests	0	0
Home/child care responsibilities	0	0
No fellowship(scholarship, grant) offered	0	0
Fellowship, etc., terminated	0	0
Other financial problems	0	0
Spouse discouraged me	0	0
Others discouraged me	0	0
Course or examination difficulties	0	
Thesis difficulties	0	
Dissatisfied with the program	0	
Moved to a different location	0	
Other	0	0

25. Indicate the year each of the following occurred: (Mark one for each item.)

	Before 1971	1971	1972	1973	1974	1975	1976	1977	Never, not applicable
First got married	0	0	0	0	0	0	0	0	0
Became a naturalized citizen	0	0	0	0	0	0	0	0	0
Received a bachelor's degree or otherwise ended undergraduate studies	0	0	0	0	0	0	0	0	0
First enrolled for graduate or professional study	0	0	0	0	0	0	0	0	0
Transferred from one graduate school to another	0	0	0	0	0	0	0	0	0
Received a master's degree	0	0	0	0	0	0	0	0	0
Received a doctorate	0	0	0	0	0	0	0	0	0
Received a professional degree (M.D., D.D.S., etc.)	0	0	0	0	0	0	0	0	0
Changed graduate major	0	0	0	0	0	0	0	0	0
Had my (medical) internship	0	0	0	0	0	0	0	0	0
Took my residency (medical)	0	0	0	0	0	0	0	0	0

26. Please estimate for the coming year:
A. Your annual salary (if self-employed indicate your annual earned income after adjusting for business expenses), and
B. Your total family income (i.e., self and spouse, if any; include all sources.) (Mark one in each column.)

	Your Salary	Total Family Income
None	0	0
Below $7,000	0	0
$7,000-9,999	0	0
$10,000-11,999	0	0
$12,000-13,999	0	0
$14,000-16,999	0	0
$17,000-19,999	0	0
$20,000-24,999	0	0
$25,000-29,999	0	0
$30,000-34,999	0	0
$35,000-39,999	0	0
$40,000-49,999	0	0
$50,000 and over	0	0

27. In all, how many dependents are supported by this total income? (Include self.) (Mark one in each column.)

	Your Own Children	Others	Total
None	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7 or more	0	0	0

28. Comparing yourself with others of your age and qualifications, how successful do you consider yourself in your career? (Mark one)

Highest 10 percent---0
Above average---0
Average---0
Below average---0
Lowest 10 percent---0
Does not apply (still in school, etc.)---0

29. Thinking of your life so far, which of the following apply to you? (Mark all that apply)

Received an award for performance in my occupation or field of specialization---0
Received an award or prize in a hobby, sport or other noncareer interest I enjoy---0
Reached my career or occupational goals---0
Earned a much better salary than I expected---0
Was in the Peace Corps---0
Was in VISTA---0
Worked actively on a political campaign---0
Authored or co-authored an article in a scholarly publication---0
Authored or co-authored a book---0
Presented a paper before a professional meeting, convention, etc.---0
Listed in Who's Who or other listings---0
Single or joint responsibility for an important scientific contribution---0